UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,312	04/06/2006	Per Beming	P17894-US1	7185

27045 7590 04/02/2009

ERICSSON INC.
6300 LEGACY DRIVE
M/S EVR 1-C-11
PLANO, TX 75024

EXAMINER	
DUONG, CHRISTINE T	
ART UNIT	**PAPER NUMBER**
2416	

MAIL DATE	DELIVERY MODE
04/02/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/595,312	BEMING ET AL.	
	Examiner	Art Unit	
	CHRISTINE DUONG	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10 and 12-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10 and 12-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is in response to the Applicant's arguments and amendments filed on 05 December 2008 in which claims 10, 12-17 are currently pending.

Claim Objections

1. Claims 10, 12, 13, 15 are objected to because of the following informalities:

Regarding claim 10, there is insufficient antecedent basis for the following limitations in the claim: “the transmitting node” in claim 10 line 25, “the receiving node” in claim 10 line 26.

Claim 12 depends on itself. Because claim 11 has been cancelled, it is believed claim 12 was intended to depend on claim 10 and has been treated as such for the remainder of this Office Action. Appropriate correction is required.

Regarding claim 13, there is insufficient antecedent basis for the following limitations in the claim: “the receiving node” in claim 13, line 26.

Regarding claim 15, there is insufficient antecedent basis for the following limitations in the claim: “the respective user” claim 15 line 17.

Claim Rejections - 35 USC § 103

2. Claims 10, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants’ Admitted Prior Art (APA) in view of Calvignac et al. (PG Pub US 2002/0191642 A1 hereafter Calvignac) and Brady et al. (US Patent No. 5,784,698 hereafter Brady).

Regarding claim 10, APA discloses a control method for regulating the flow of data between a first transmitting radio network node and a second transmitting radio network node in a radio transmission network (figs. 1-4).

The limitation, said second transmitting radio network node receiving data from said first transmitting radio network node to be forwarded to plural user entities via an air interface (fig. 1).

The limitation, the first transmitting radio network node sends a capacity request (capacity request 19, fig. 4) to the second transmitting radio network node requesting the second transmitting radio network node for permission to send an indicated number of data units that are pending in the first transmitting radio network node ("A capacity request frame, illustrated by arrow 19, is sent by SRNC thus informing Node-B's buffer 9 about the amount of pending user data in SRNC for UE1" page 4 lines 6-8).

The limitation, the second transmitting radio network node, in response to the capacity request, sends an allocation frame (capacity allocation 20, fig. 4) to the first transmitting radio network node, said allocation frame indicating the number of data units the first transmitting radio network node is given permission to transmit, this latter number being referred to as credits ("Next Node-B sends an allocation frame, represented by the uppermost arrow 20, indicating the amount of credits that SRNC is allowed to send for UE1. This amount is indicated in the granted credits frame field" page 4 lines 15-17).

The limitation, said second transmitting radio network node, if buffer resources for storing of data units at the second transmitting radio network node are limited for a

data flow between the first and second transmitting radio network node (“Node-B allocates some capacity based on the free buffer space available in the buffer of UE1 in Node-B” page 4 lines 8-9).

The limitation, counting the instantaneous number of requested data units (“the amount of pending user data in SRNC for UE1” page 4 lines 7-8).

The limitation, computing the number of credits to be granted by subtracting from a target buffer filling level the number of data units currently stored in the buffer and the number of credits previously given but not yet received (outstanding credits) (“Node-B allocates some capacity based on the free buffer space available in the buffer of UE1 in Node-B. Expressed in very general terms and non-complete manner the free buffer space is a buffer's maximum memory space minus any outstanding credits. Expressed in very general terms and incomplete manner the term "outstanding credits" refers to user data that have been granted credit for transmission from SRNC to Node-B but have not yet been received by Node-B” page 4 lines 10-13).

The limitation, inserting the number of granted credits so computed in an allocation frame for transmission to the transmitting node in response to the capacity request (“Next Node-B sends an allocation frame, represented by the uppermost arrow 20, indicating the amount of credits that SRNC is allowed to send for UE1. This amount is indicated in the granted credits frame field. SRNC receives the allocation frame, extracts therefrom the number of granted credits, writes the credits into a non-shown counter overwriting any previous granted credits and sends the corresponding number of MAC-d PDUs to Node-B” page 4 lines 15-20).

However, APA does not explicitly disclose computing the number of credits to be granted by subtracting from a target buffer filling level the number of data units currently stored in the buffer and the number of credits previously given but not yet received (outstanding credits).

Nevertheless, Calvignac discloses “The number of credits to be issued to the Dataflow ASIC for each input queue is then calculated by subtracting the filling level of the queue and the outstanding credits register for the queue from the maximum credits register for the queue” (Calvignac [0067]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to compute the number of credits to be granted by subtracting from a target buffer filling level the number of data units currently stored in the buffer and the number of credits previously given but not yet received (outstanding credits) because it will allow “credit generation logic for managing the flow of dispatch messages "(Calvignac [0067]).

In addition, APA, Calvignac discloses everything claimed as applied above. However, APA, Calvignac does not explicitly disclose comparing the available memory space in the receiving node with the number of requested data units and selecting the smaller one of these numbers as a potential number of granted credits from which the number of outstanding credits is subtracted in order to obtain the number of, granted credits.

Nevertheless, Brady discloses “to compare the actual size of the requested buffer space to the buffer size in each free buffer pool. If the size of the needed buffer

space is larger than the largest available buffer size in a free buffer pool, then the. BCB with the largest buffer size is selected. Otherwise, the BCB with the buffer size that is just larger than the actual size of the buffer needed is selected" (Brady column 5 lines 15-20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to compare the available memory space in the receiving node with the number of requested data units and select the smaller one of these numbers as a potential number of granted credits from which the number of outstanding credits is subtracted in order to obtain the number of, granted credits because it will "minimize an overall amount of buffer space that is allocated when utilizing the BCB's" (Brady column 5 lines 13-14).

Regarding claim 12, APA, Calvignac, Brady discloses everything claimed as applied above (see claim 10). However, APA does not explicitly disclose increasing the count each time an allocation frame is sent, said count being increased with the number of granted credits indicated in the allocation frames; and, decreasing said count each time data units are received, said count being decreased with the number of received data units.

Nevertheless, Calvignac discloses "the credit value to be transferred is then added to the outstanding credits register for that queue" and "the Dispatch.response message decoder sends a decrement counter signal to the credit generation logic to decrement the outstanding credit counter for the corresponding input queue by one" (Calvignac [0067]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to disclose increase the count each time an allocation frame is sent, said count being increased with the number of granted credits indicated in the allocation frames; and, decrease said count each time data units are received, said count being decreased with the number of received data units because it will allow “credit generation logic for managing the flow of dispatch messages "(Calvignac [0067]).

3. Claims 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Calvignac and Miyoshi et al. (PG Pub US 2003/0087662 A1 hereafter Miyoshi).

Regarding claim 13, APA discloses a control method for regulating the flow of data between a first transmitting radio network node and a second transmitting radio network node in a radio transmission network (figs. 1-4).

The limitation, said second transmitting radio network node receiving data from said first transmitting radio network node to be forwarded to plural user entities via an air interface (fig. 1).

The limitation, the first transmitting radio network node sends a capacity request (capacity request 19, fig. 4) to the second transmitting radio network node requesting the second transmitting radio network node for permission to send an indicated number of data units that are pending in the first transmitting radio network node (“A capacity request frame, illustrated by arrow 19, is sent by SRNC thus informing Node-B's buffer 9 about the amount of pending user data in SRNC for UE1” page 4 lines 6-8).

The limitation, the second transmitting radio network node, in response to the capacity request, sends an allocation frame (capacity allocation 20, fig. 4) to the first transmitting radio network node, said allocation frame indicating the number of data units the first transmitting radio network node is given permission to transmit, this latter number being referred to as credits ("Next Node-B sends an allocation frame, represented by the uppermost arrow 20, indicating the amount of credits that SRNC is allowed to send for UE1. This amount is indicated in the granted credits frame field" page 4 lines 15-17).

The limitation, the second transmitting radio network node, if buffer resources for storing of data units at the second transmitting radio network node are limited for each data flow between the first and second transmitting radio network nodes ("Node-B allocates some capacity based on the free buffer space available in the buffer of UE1 in Node-B" page 4 lines 8-9).

The limitation, counting the instantaneous number of requested data units in each data flow to obtain a total number of requested data units ("the amount of pending user data in SRNC for UE1" page 4 lines 7-8 and "Credits given an individual UE with the above known "per flow" based credit assignment scheme are independent credits given another UE. It is called "per flow" based because each user data flow is independent of other flows" page 5 lines 14-16).

computing the total number of credits to be granted in each data flow by subtracting from a target buffer filling level for the total number of data flows the total number of data units currently stored in each of the buffers and the total number of

credits previously given but not yet received (“Node-B allocates some capacity based on the free buffer space available in the buffer of UE1 in Node-B. Expressed in very general terms and non-complete manner the free buffer space is a buffer's maximum memory space minus any outstanding credits. Expressed in very general terms and incomplete manner the term "outstanding credits" refers to user data that have been granted credit for transmission from SRNC to Node-B but have not yet been received by Node-B” page 4 lines 10-13).

However, APA does not explicitly disclose computing the total number of credits to be granted in each data flow by subtracting from a target buffer filling level for the total number of data flows the total number of data units currently stored in each of the buffers and the total number of credits previously given but not yet received.

Nevertheless, Calvignac discloses “The number of credits to be issued to the Dataflow ASIC for each input queue is then calculated by subtracting the filling level of the queue and the outstanding credits register for the queue from the maximum credits register for the queue” (Calvignac [0067]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to compute the total number of credits to be granted in each data flow by subtracting from a target buffer filling level for the total number of data flows the total number of data units currently stored in each of the buffers and the total number of credits previously given but not yet received because it will allow “credit generation logic for managing the flow of dispatch messages "(Calvignac [0067]).

In addition, APA, Calvignac discloses everything claimed as applied above. However, APA, Calvignac does not explicitly disclose distributing the total amount of credits of the receiving node proportionally to the radio channel qualities indicated by the respective user entities.

Nevertheless, Miyoshi discloses " HDR is a communication method whereby a base station performs scheduling for allocating communication resources to communication terminals by time division, and also sets a transmission rate for each communication terminal according to the downlink channel quality" (Miyoshi [0003]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to distribute the total amount of credits of the receiving node proportionally to the radio channel qualities indicated by the respective user entities because it will allow "for increasing the transmission efficiency" (Miyoshi [0003]).

Regarding claim 14, APA, Calvignac, Miyoshi disclose everything claimed as applied above (see claim 13). However, APA does not explicitly disclose limiting the total sum of user data in all data streams to a desired value less than or equal to the total requested number of data units.

Nevertheless, Calvignac discloses "the maximum credit registers specify the maximum number of credits to be issued for transfer of frames into each input queue" (Calvignac [0067]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to limit the total sum of user data in all data streams

to a desired value less than or equal to the total requested number of data units because it will allow “credit generation logic for managing the flow of dispatch messages "(Calvignac [0067]).

4. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Miyoshi.

Regarding claim 15, APA discloses a control method for regulating the flow of data between a first transmitting radio network node and a second transmitting radio network node in a radio transmission network (figs. 1-4).

The limitation, said second transmitting radio network node receiving data from said first transmitting radio network node to be forwarded to plural user entities via an air interface (fig. 1).

The limitation, the first transmitting radio network node sends a capacity request (capacity request 19, fig. 4) to the second transmitting radio network node requesting the second transmitting radio network node for permission to send an indicated number of data units that are pending in the first transmitting radio network node (“A capacity request frame, illustrated by arrow 19, is sent by SRNC thus informing Node-B's buffer 9 about the amount of pending user data in SRNC for UE1” page 4 lines 6-8).

The limitation, the second transmitting radio network node, in response to the capacity request, sends an allocation frame (capacity allocation 20, fig. 4) to the first transmitting radio network node, said allocation frame indicating the number of data units the first transmitting radio network node is given permission to transmit, this latter number being referred to as credits (“Next Node-B sends an allocation frame,

represented by the uppermost arrow 20, indicating the amount of credits that SRNC is allowed to send for UE1. This amount is indicated in the granted credits frame field" page 4 lines 15-17).

However, APA does not explicitly disclose distributing the number of credits given by the second transmitting radio network node proportionally to the radio channel qualities indicated by the respective user entities to which the second transmitting radio network node is scheduling radio transmission of data units.

Nevertheless, Miyoshi discloses " HDR is a communication method whereby a base station performs scheduling for allocating communication resources to communication terminals by time division, and also sets a transmission rate for each communication terminal according to the downlink channel quality" (Miyoshi [0003]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to distribute the number of credits given by the second transmitting radio network node proportionally to the radio channel qualities indicated by the respective user entities to which the second transmitting radio network node is scheduling radio transmission of data units because it will allow "for increasing the transmission efficiency" (Miyoshi [0003]).

Regarding claim 16, APA discloses a radio network node for regulating the flow of data from a transmitting node (figs. 1-4).

The limitation, a buffering resource (fig. 2).

The limitation, a capacity allocation device for allocating individual amounts of user data to individual user entities ("A capacity request frame, illustrated by arrow 19,

is sent by SRNC thus informing Node-B's buffer 9 about the amount of pending user data in SRNC for UE1" page 4 lines 6-8).

The limitation, a flow control protocol and a scheduler (figs. 1-4).

The limitation, the capacity allocation device comprises a counter for keeping a running count of the instantaneous number of outstanding credits, outstanding credits being defined as the number of data units that the allocation device has permitted the transmitting node to send, although the corresponding number of data units has not yet arrived at the radio network node ("the free buffer space is a buffer's maximum memory space minus any outstanding credits … outstanding credits refers to user data that have been granted credit for transmission from SRNC to Node-B but have not yet been received by Node-B" page 4 lines 11-14 and "Credits given an individual UE with the above known "per flow" based credit assignment scheme are independent credits given another UE. It is called "per flow" based because each user data flow is independent of other flows" page 5 lines 14-16).

However, APA does not explicitly disclose a distribution device adapted to distribute the total number of credits given by the radio network node proportionally to the radio channel qualities indicated by the respective user entities to which the scheduler is scheduling radio transmission of data units.

Nevertheless, Miyoshi discloses " HDR is a communication method whereby a base station performs scheduling for allocating communication resources to communication terminals by time division, and also sets a transmission rate for each communication terminal according to the downlink channel quality" (Miyoshi [0003]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have a distribution device adapted to distribute the total number of credits given by the radio network node proportionally to the radio channel qualities indicated by the respective user entities to which the scheduler is scheduling radio transmission of data units because it will allow “for increasing the transmission efficiency" (Miyoshi [0003]).

Regarding claim 17, APA, Miyoshi disclose everything claimed as applied above (see claim 16). In addition, APA discloses the capacity allocation device comprises a counter for keeping a running count of user data pending in the transmitting node (“the amount of pending user data in SRNC for UE1” page 4 lines 7-8).

Response to Arguments

Previous 35 USC 112 with the enablement requirement rejection to claims 11-12 are withdrawn in view of Applicant's amendment.

5. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE DUONG whose telephone number is (571)270-1664. The examiner can normally be reached on Monday - Friday: 830 AM-6 PM EST with first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin C. Harper/
Primary Examiner, Art Unit 2416

/Christine Duong/
Examiner, Art Unit 2416
03/30/2009